

DESIGN

A monthly journal for manufacturers and designers



STREAMLINING: FAD OR FUNCTION?

DESIGN AND THE DISTRIBUTOR

DESIGNING A RADIANT ELECTRIC HEATER

SCOTTISH INDUSTRIES EXHIBITION

COUNCIL OF INDUSTRIAL DESIGN

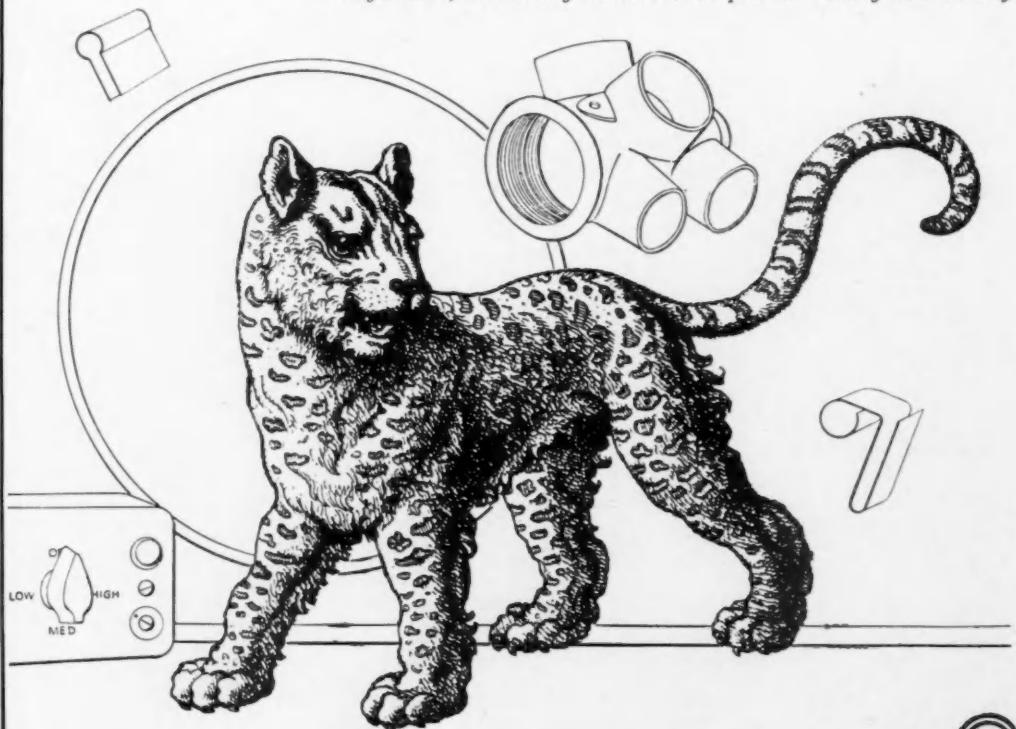
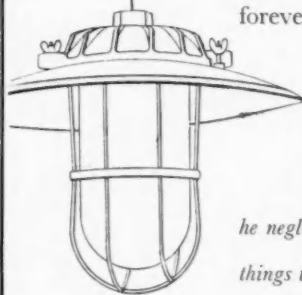
NUMBER 10 : OCTOBER 1949

PRICE TWO SHILLINGS

The fable of the logical leopard

A Young Leopard came back to his forest from a tour of the civilised world. "Mankind," he declared, "is restless, bald, unhealthy, obstinate, short-sighted, spindle-shanked, intemperate, verbose and inquisitive, forever troubling its brains and fingers. I saw nobody as beautiful as myself." "And what did you learn?" asked his friends. "Nothing whatever!" said he. "After all, I'm only a leopard."

Man, whatever his defects, has resources denied to every other creature. When he neglects them, he fails: when he uses them, he has a chance to flourish. And the things that TI make, from huge pressure vessels to complex precision tubes, from parts of aeroplanes to complete bicycles, from paints to wrought aluminium alloys, electric irons to metal furniture, are tokens of British leadership in the realm of human ability.



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ON CATERING FOR AMERICAN TASTE

WHEN *Time* magazine reports on a current exhibition of contemporary interior design at Detroit, called "Modern Living," and suggests that the exhibition successfully put over the point that "with a sharp eye and a little persistence the average shopper could find enough handsome, well-designed contemporary furnishings to fill any modern home," and when, in the same column, the editors of *Time* refer to the "overdecorated, overstuffed period pieces most Americans are used to"—then it is none too soon for all who live by export to the USA to take stock of their own design policies. Indeed, hardly a day passes without some Washington correspondent making some reference to design or styling, or to suiting British wares to American tastes.

The difficulty in following all this admirable advice is that American taste is as diverse and unstable as American public opinion; it ranges from "gracious living" in Georgian settings along the eastern seaboard to uninhibited *avant-garde-ism* on the Californian coast, and between the two lies the vast middle market where anything goes, from the folksy and the wroughty to the svelte and the streamlined; and its diversity is matched by its instability. Americans have an astonishing and endearing characteristic which is unknown in our conservative climate—they will literally try anything once. They are instant suckers for a novelty—hence the constant introduction of new lines and the seasonal re-styling of old ones.

This variety and changefulness present both obstacles and opportunities to the exporter from

the sterling area. The American market is so vast that the manufacturer who sets out to cater for all tastes is likely to end up by catering for none, and the manufacturer who thinks he can cut in on the American home trade by copying a current vogue is likely to be caught out by the next shift of fashion. Moreover, few British manufacturers operate on a scale large enough to capture more than a fraction of the total American market. The wise course, therefore, for a small manufacturer, as has been argued by a noted American designer, George Nelson, in *Fortune* (his article will be reprinted in full in the November issue of *DESIGN*), is to seize a limited market by striking an original note. It is no good for the small man to tag along behind the big producer, copying his designs; that way he competes on the most unfavourable terms possible. "For most manufacturers in the lower brackets," says Nelson, "the radical approach to design may be the safest business approach."

It may also be that the new taste for contemporary designs, as revealed in *Time's* references to the Detroit exhibition ("to the average gallerygoer the exhibits looked handsome, efficient, worth taking home"), will open up a fresh area of opportunity for British manufacturers, for the taste, though spreading, is still confined to the upper income brackets where quality and an imported *cachet* count. No country has such an outstanding name in contemporary design that Britain, with her immense prestige for quality, could not step in and take the lead.

P. R.

STREAMLINING: FAD OR FUNCTION?

"Much so-called streamlining is imposed on the designer by the necessity of obtaining low cost through high-speed production." By Harold Van Doren, SID *

ALMOST EVERY ISSUE of DESIGN has contained some ironic or humorous reference to the penchant of designers in the United States for "streamlining" everything from lipsticks to electric cookers. It may therefore be profitable to record some of the extenuating circumstances responsible for what may seem to the uninitiated a gross lack of taste or little more than a foolish fad.

There is no denying that the use of airfoil forms and soft radii in place of crisp edges and corners has become a kind of hallmark of American industrial design. The average American manufacturer now refers to design as "streamlining" or, even worse, "styling"—much as the more thoughtful of our designers deplore both terms. Criticism of this American peculiarity comes not only from sources abroad. Barbed shafts are often aimed by native writers. "Why," they say, "should static objects be streamlined? Ridiculous!" In some cases the not-too-soft impeachment is justified. Fad is sometimes responsible and, like all fads, it will pass.

Nevertheless, such criticism is, more often than

not, wholly uninformed. The truth is that much so-called streamlining is imposed on the designer *by the necessity of obtaining low cost through high-speed production*. What may thus appear to be a captious preference for voluptuous curves and bulging forms in place of a more athletic spareness, proves to be one result of the evolution of fabricating methods and assembly-line techniques.

Let us skip the automobile: few thoughtful American designers really go along with the monstrous inflation of the current motor-car body. They agree with the rebellious chief engineer of one of the motor companies in dubbing it "the Jello school of design." Next to the automobile and the radio, electric refrigerators and freezers extract more money from the American bank account than any other variety of consumer-owned equipment. In 1948, more than five million were sold, at an average price well over \$200. Let us consider the refrigerator, then, as an example of the manufacturing technology design.

Prior to World War I and for some years thereafter, production of electric refrigerators was small and prices were high. (As a profession, industrial design did not then exist.) The mechanical unit—compressor, condenser, evaporator—was clumsy, inefficient and

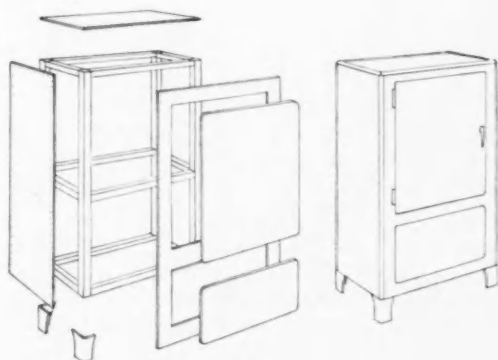


FIGURE 1

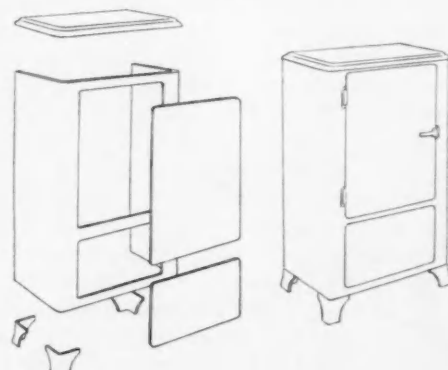


FIGURE 2

* One of the pioneer design consultants in USA, Mr Van Doren is this year's President of the Society of Industrial Designers

noisy. Cabinet exteriors consisted of flat sheets of vitreous-enamelled steel, fastened with screws to a wooden frame (Figure 1). But crude as they were demand for them grew apace. The old-fashioned ice box was doomed. Here was a device which was cleaner; it kept foodstuffs at constant low temperatures; it eliminated the messy catch-pan for melted ice. Rapid development of a giant industry was inevitable. Further impetus was soon provided by the development of the compact and almost noiseless hermetic system, and by intensive chemical research into more efficient refrigerants.

Cabinet design, however, improved quite slowly. Up to 1933, the electric refrigerator still mimicked the wooden ice box, save that it was made from sheet steel and painted white. The main body of the cabinet was a wrap-around from front to back. A large opening was pierced in the front to receive the vitreous-enamelled food compartment. The whole was surmounted with a shallow drawn-steel lid, often formed to imitate wood moulding (2).

Although the industry had approached a million units in 1929, owing to the slump this volume did not recur until 1933. In that year the Norge company engaged an industrial design consultant, L. V. A. Guild. Following his appointment, Norge produced among its several models a couple of sizes in a new form. The cabinet was produced in sections from large metal drawing dies (3). Each side was made in one piece, which, together with a pressed top member closely matching the conformation of the side panels, was fastened to a skeletonised frame (not shown in sketch). The entire machine was then put together on a progressive assembly line.

It was the old story of the schism between metal fabrication—bending a sheet of metal at sharp angles on press brakes—and the production of component panels or segments on big and powerful steel stamping



Philco refrigerator with flush door; radii at the upper corners must match the $3\frac{1}{2}$ inch radius of the one-piece, U-type shell

presses. The new procedure touched-off a rush by all manufacturers to adopt these far more economical and rapid methods of manufacture. From 1936 on, as production began to climb over the two-million-unit mark, few manufacturers could remain in competition if they retained the old methods. Furthermore, the public liked the smooth, easily cleaned, nearly jointless surfaces. Since steel stamping

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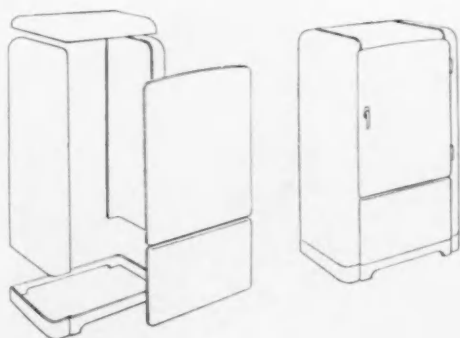


FIGURE 3

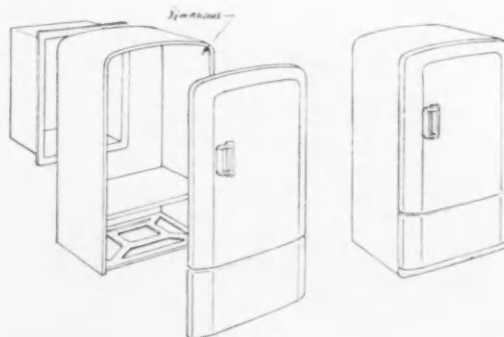


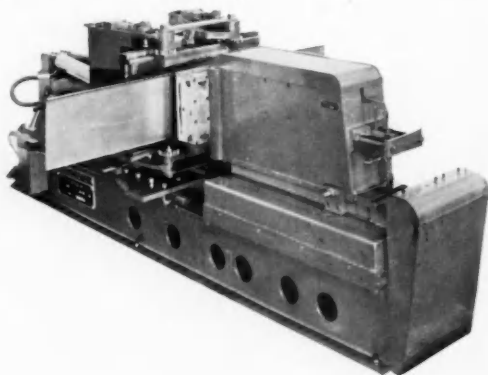
FIGURE 4

techniques make it impossible to produce hard 90° edges or pointed corners, any designer engaged by a refrigerator company was already committed to these larger radii and softer contours.

By 1939 the industry, together with the rest of the country, had climbed gradually out of the economic depression, and public demand soon raised output to over two million units. This was big business. As usual a number of smaller manufacturers fell by the wayside, and production became concentrated in the hands of large companies whose financial resources and huge plant facilities enabled them to put up the big initial investment needed for tools and dies, jigs and fixtures. By this time, only six years later, the assembly of separate panels fitted to a metal frame was already too slow and too costly. The next revolution in manufacturing techniques came from the Westinghouse Company. Westinghouse adapted the tangent bender, known popularly as the "bulldozer," to the manufacture of refrigerator cabinets. In this method the entire shell of the refrigerator is formed of one long piece of steel wrapped up one side, across the top and down the other side. First, long flat sheets are fed through continuous rolls which turn down a right-angle flange along one edge and an S or "Dutch" bend on the other. The resulting sheet is then set edgewise in front of a steel form simulating the final contours. A hydraulic ram drives the form forward as long mechanical arms fold the sheet around it. The finished piece forms an inverted U. The radii at the upper corners of the U *cannot be less than 3½ inches*. (This is important, as will be seen later.)

The saving over the previous method of assembly

First step in "U-ing up" a refrigerator shell in a double-wing tangent bender. The long sheet has already been run through continuous rolls to form flanges

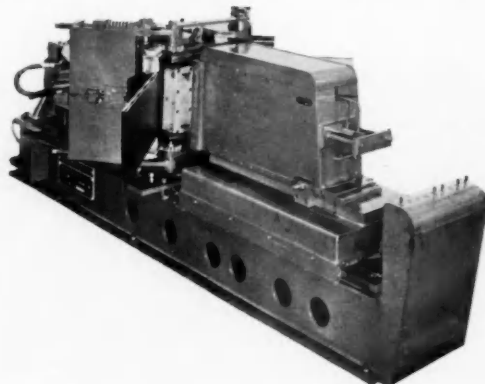


by panels is due to the fact that no separate inner frame or chassis is required. Somewhere below centre a transverse pan is welded into the U. Another pan or a spider is welded in at the bottom, and it is on this bottom piece that the compressor and condenser are mounted. Meanwhile, the food storage compartment tank has been separately fabricated and has passed through the vitreous enamelling process. This tank is inserted into the shell, and blocks of insulating material are slid in at sides, top and bottom of the cavity. When the evaporator has been installed and connected with the compressor-condenser unit, back insulation is inserted and a back panel secured in place. Figure 4 shows the result.

At about this time the Philco Corporation, largest radio manufacturer in the United States, decided to enter the refrigerator field in order to even out seasonal sales of its distributors and dealers. Starting from scratch in 1940 and building entirely new dies for its line of refrigerators, Philco adopted this latest method of building refrigerator cabinets just a year after its introduction. Gradually, because of obvious cost savings, other manufacturers changed over, and a design was set—one might almost say frozen, with no pun intended.

It should be readily apparent from an examination of the drawings and photographs accompanying this article how the designer has become increasingly limited by the means he has at his disposal. He cannot now use corners on the cabinets of less than 3½-inch radius. The top may be flat, but it is preferable that it should have a certain amount of camber to avoid the appearance of being "dished." It has been found helpful to introduce a certain amount of camber transversely through a section of the sides to avoid diaphragming of the sheet metal—the "oil-can" effect.

Hydraulic ram drives forward, pressing form of top contours against middle of sheet as wings or arms start forward

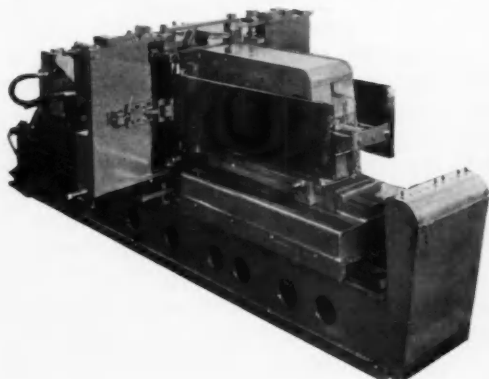


Being limited by the large radii at the corners and the crowned top, the designer finds that he *must also employ soft radii on the door*—or else produce a complete mismatch. It may therefore readily be seen that what appears to the unsophisticated eye as a preference for soft curves is the result of economical high-speed production methods, which kept prices of refrigerators moving steadily downwards as volume increased. (This price trend was, of course, reversed after World War II, but the American refrigerator—technically far better than it had ever been before—went up in price less than almost any comparable commodity.)

As so often happens in American industry, with its aggressive and rapid methods of distribution and its cut-throat competitive markets, a radical manufacturing technique, for imperative economic reasons, becomes standard for an entire industry and forces external appearance into a rigid and almost inescapable mould. Products in each category thus tend to become more and more like Tweedledum and Tweedledee, and the designer's ingenuity is taxed to the breaking point to produce distinctiveness for his particular client within fixed outlines. But who is to say that the loss of individual opportunity for the designer is greater than the gain in health and well-being for the little man and his family? A quarter of a century ago only the wealthy could afford the equipment necessary to preserve nutritious perishable foods under sanitary conditions. Today, one can buy many times the value for one-half of the price.

I have described one example in considerable detail, but it could be multiplied many times over. The electric range, for instance, has undergone a similar metamorphosis in America. It used to be a tinny and graceless affair. Now the cooking surface and the backguard with its switches and instruments

Complete U-shaped shell is formed; wiper block has wiped upper corner radii around form



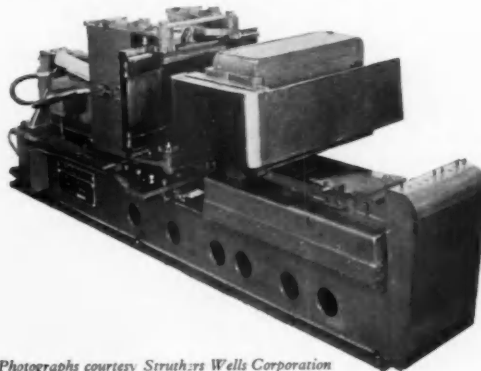
A single-wing tangent bender showing a small refrigerator shell complete before welding-in of transverse pan and stiffening supports. These machines are used for shorter runs than the model shown below

can be made of one piece of steel instead of two or three; again soft contours are imposed by the greater speed of production and resulting lowered cost. Kitchen sinks, washing machines—even bath-tubs—have undergone similar changes which, thanks to the increased availability of large forming presses in this country, have reduced prices but have altered the style of design to a degree that designers themselves do not always like. However, it is now possible to buy a bath-tub of vitreous enamelled steel, less than one-third in weight of a cast-iron or porcelain tub, for \$69.

Many instances can be found in smaller appliances, such as toasters, coffee urns and vacuum sweepers. The automatic toaster is an almost indispensable adjunct to the American home. Before the last war, nearly all toasters (which for durability must be chromium plated) were made in three parts: two side panels and a wrap-around. Several post-war models have appeared consisting of a phenolic plastic base on which the electrical elements are mounted and a

continued on p. 28

Ram is withdrawn and form is rotated 90° for easy removal of the finished piece



Photographs courtesy Struthers Wells Corporation

1951 STOCK LIST SELECTION : 4

Recent additions with a commentary by P. Morton Shand

1 Open fireplaces still provide the only heating in the majority of British homes. As the majority of British householders obstinately prefer them, they are likely to continue to do so until the bulk of the population has been re-housed according to those comprehensive labour-saving standards which, we are told, will include district heating. Other nations which used to smile at our conservativeness in this respect seem to be changing their minds. Some of the most recent small country houses in Sweden and Switzerland have an open grate in the living-room because their architects consider this provides an essential psychological focus for family life in winter that is otherwise lacking.

The attractively simple and cheerful-looking model shown (of which the polished Hopton Wood stone surround and hearth do not, of course, form an integral part) can be fitted to any normal-sized grate. It is also an economical one, for an adjustable shutter ensures slow burning at night and obviates the need for (and ordeal of) daily re-lighting.



4 *Crista colorimeter*
by Hawksley &
Co Ltd

2 An interesting point in this neat and pleasantly proportioned design is that though the reason why eight out of the 13 louvres are grouped at the top is purely functional, this distribution, like the depth of the band of plain casing between the two groups, satisfies the eye as being an essentially right and proper one.

3 During recent years the evolution of the gas cooker has been steadily approaching what, in terms of existing technical resources, may be called finality of form, though hitherto no one model has satisfactorily combined maximum efficiency and simplicity with outstanding excellence of design.

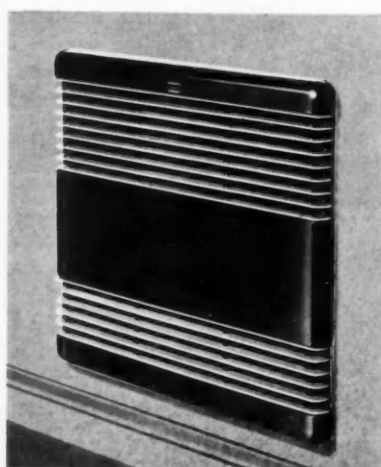
The present example seems to come very close to that ideal finality—for the present age at all events. Here we have a gas-cooker that could not be more simple or compact; the neat closing top is an excellent refinement which eschews all decoration, more particularly that only too familiar speckled “marbled” enamelling, and is content to rely on good proportions. The oven in this model is thermostatically controlled.

4 In non-scientific language a “colorimeter” (the example shown is intended for pathological use: *i.e.*, measuring the haemoglobin content of blood) may be described as an instrument for gauging the colour intensity of a solution under test against that of an accepted standard solution.

The solution to be tested is put into one of the twin glass receptacles and the standard solution into the other. Their colour, illuminated by the reflector at the base, can be viewed simultaneously by means of the eye-piece on top through the glass rods partially immersed in each receptacle. The knob at the back raises and lowers one or other of these until the colours of the two solutions are seen to be the same, the depth of the solution under test relative to that of the standard solution enabling its percentage figure to be ascertained. A good example of the very high



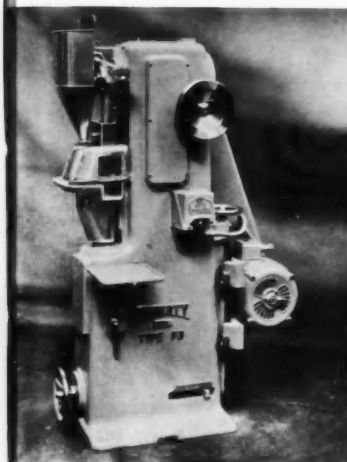
Grate by Eagle Range & Grate Co Ltd



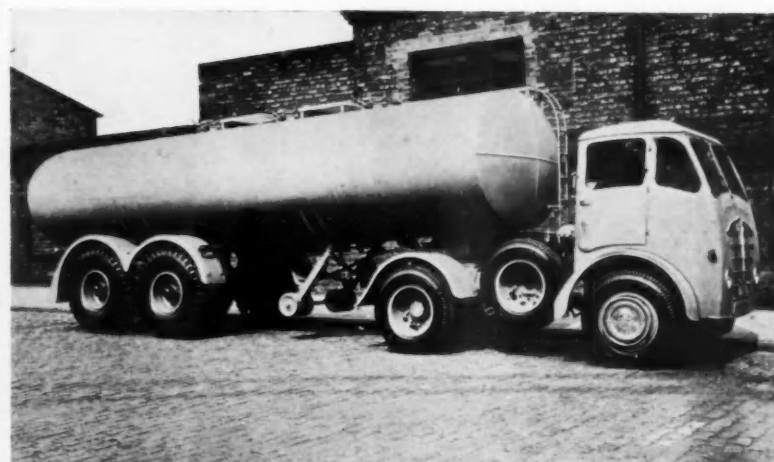
2 Thermovent space heater by E. K. Cole Ltd



3 Gas cooker by Sidney Flavel & Co Ltd



Tablet compressor by Manesty Machines Ltd



6 Heavy-duty tank trailer by R. A. Dyson & Co Ltd with Foden haulage unit

current standard of design in the British scientific instrument industry.

5 Unlike the highly specialised laboratory instrument shown at 4, the nature of this machine (which turns out 5,000 tablets an hour) is an easy enough one for the layman to grasp without first having to digest its operational technicalities. Yet both have a fairly close formal affinity.

Modern mechanical design tends more and more to combine a sequence of processes hitherto performed by separate machines within a single overall

casing. That has made for economy of space and ease of handling, and so for increasing compactness and consequent seamliness of appearance. It is a pity that the unnecessary clover-leaf decorative treatment of the motor's air vents should spoil the general effect of what is otherwise a prepossessing machine; though the motor itself might be more tidily integrated to the mechanism it has to drive.

6 Apart from motor-coach bodies (on which huge tadpoles of lighter-coloured paint so often wriggle
continued overleaf

continued

diagonally across the side-panelling), the appearance of British commercial vehicles has so far been little affected, happily, by American influence. All in all, they are still about the most forthright and handsome that any country produces.

It may be objected that though the tank trailer illustrated is a straightforward and competent enough piece of work, there is nothing outstandingly noticeable about its design. That can be admitted, but the admission is in itself a not inconsiderable tribute.

The suspension of the tank and the trailer's articulation to what might be called its "mechanical horse" have been carefully studied; the mudguards are very well handled; and the placing of the spare wheel shows proper appreciation of the need to find a place for it that will preserve a just visual balance in the grouping of the wheels.

7 Refuse collection vans have only recently emerged as a specialised type of commercial vehicle. Until the use of standardised dust-bins—already enforced in some of the more progressive Continental cities—is made compulsory, they cannot be expected to be altogether rationally or hygienically designed.

All the same, it is encouraging to find that while adhering closely to the spirit of the best traditions in British motor design, the severely utilitarian purpose they serve is usually embodied in a way that instinctively reassures the most critical eye.

The rectangular metal panels in the example shown give additional structural strength against heavy impacts, the placing of their flanges on the outside being dictated by the necessity to leave the interior free of protruding edges.



7 Municipal refuse van (Thornycroft). Body by Glover, Webb & Liversidge Ltd

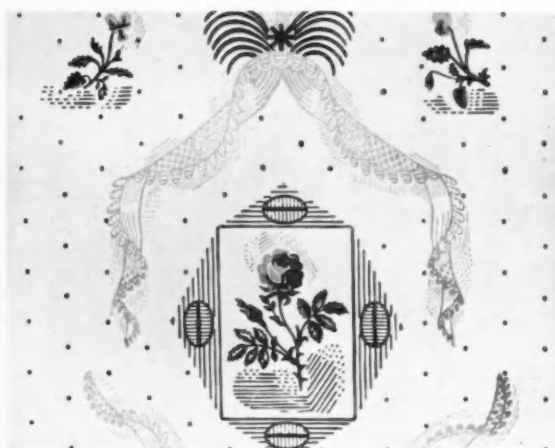
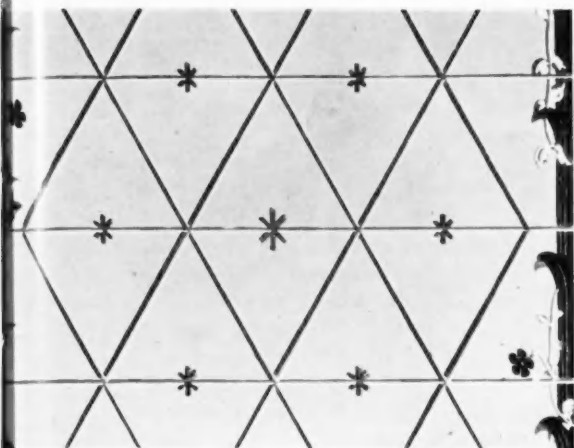
The lettering deserves particular praise, though it is a pity the words *Cleansing Department* were not dropped a trifle so as to lie midway between the long horizontal ridge formed by the metal panelling and the top of the darker paint.

8 As wallpapers are the means both of accentuating and visually modifying the shapes of rooms, the first quality required in them is restfulness, or anyhow an absence of any restless features; though there are, of course, rooms which for one reason or another call for dynamic designs. In the second place they must provide an harmonious general background to furniture and pictures. Some people find plain or small-patterned papers restful; to others they are irritating or oppressive. In any case a good wallpaper should afford an effective, but not too self-assertive, means of humanising uncovered wall-spaces. Horizontal or diagonal patterns almost invariably defeat that important requirement.

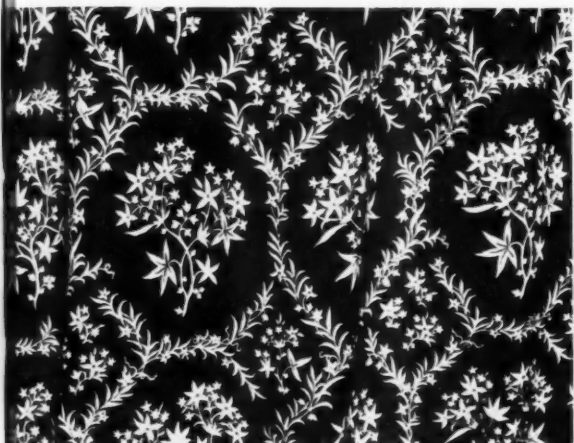
In two recent designs by Edward Bawden the emphasis remains directly vertical. Although *Periwinkle* has a horizontal and diagonal pattern (inspired by that of a tautly drawn wire trellis in a garden's winter nakedness) the vertical emphasis is restored, and the necessary enlivenment achieved, by the sequence of little wire-hung rosettes left on the trellis where the absent creeper's ties and tendrils had been so neatly snipped off. This is a good basis for a wallpaper design because, though abstract and consequently tranquilising, those rosettes in their varying sizes prevent a latticed geometry from becoming too blankly neutral.

Lace and Rose, an admirable pattern for a sunny room, is more typical of this artist. Here the sharply defined rectangles that completely enclose the roses will to some seem rather harshly arresting. But an effect suggestive of a reiteration of small picture-frames was almost certainly intentional. In a picture-less room this design would undoubtedly help to "clothe" the walls and soften bare spaces very genially.

9 An example of how a very slight inflection can lend just sufficient vitality and movement to a printed dress fabric which without its aid would lack the necessary modicum of either. Actually this finely detailed wreathed pattern is based on four motifs, two large and two small. The almost minute variations as between both the smaller and larger ones, though only apparent under close scrutiny, are the factor which effectively prevents it from being frozen



8 *Periwinkle* (left) and *Lace & Rose* wallpapers by Cole & Son (Wallpapers) Ltd, designed by Edward Bawden



9 and 10 *Dress fabrics* designed by Margaret Simeon and printed for John Lewis & Co Ltd

into the sort of static formalism appropriate for curtain hangings. By that delicate and subtle differentiation just the right degree of fluid, independent rhythm is imparted which draping and moulding to the body insistently demand.

10 One of the paramount problems to be overcome in designing large or intricately patterned dress materials is that they must look right when made up more or less regardless of how and where they are destined to be draped, bunched, pleated or cut. This intangible quality is hard to define and still harder for

the designer's eye to anticipate on paper. Unless he has had a thorough grounding in the natural forms of flowers and foliage he will never be able to improvise free inventions or fanciful combinations of either. The printed cotton illustrated has the simplest sort of pattern of curling tendrils and small leaves so closely interwoven vertically and horizontally that it is hard to isolate the basic motif of its design. Yet, as the photograph shows, when allowed to fall into random folds the pattern is not sensibly broken up or marred. That is the result of admirable spacing and graduation of proportions.

DESIGN AND THE DISTRIBUTOR

The gas industry shows how large-scale distributors can exert an influence on product design

by Leslie Hardern, *Public Relations Officer, North Thames Gas Board* *



IT IS OFTEN said that the distributor, the wholesaler, and the retailer ought to take a leading part in the improvement of design standards, and act as the defenders of the consumer.

The gas industry is one example where this has been done successfully, although its task has not been quite so formidable as in some other industries owing to a fortunate phase in its early development. At one time the industry considered it quite sufficient to lay on a supply of gas to a consumer's house. The provision and fitting of cookers, fires, water heaters, etc was left for the consumer to arrange with his plumber or ironmonger. As, however, it was found that many badly designed, wasteful and even dangerous appliances were being fitted, and often badly fitted, the gas undertakings steadily took over the distribution and installation of almost all gas-burning equipment. This gave them control, not only of the methods of installation, but also of the design and quality of the equipment, and thus they were able to protect the consumer.

Before nationalisation of the gas industry there were about a thousand gas undertakings in this country, and an unfortunate tendency was for the manager of each undertaking to insist on small alterations to the design of the equipment offered him by manufacturers, his reasons being based on personal desires or prejudices, rather than on sound principles of design. If all the gas undertakings had been of similar size and buying power, this would have resulted in dear appliances and incredible complications in maintenance and the manufacture of spare parts. It has been calculated, for instance, that the possible combinations and permutations of the parts of a gas cooker amount to something like three million! Fortunately, however, the gas undertakings were of very unequal size, ranging from one-man firms to The Gas Light and Coke Company, which was the largest gas under-

taking in the world, and was directly and indirectly responsible for the supply of one-third of all the gas equipment manufactured in Great Britain. This unique position placed an enormous responsibility on the company, and made it essential to have a first-class design and development organisation.

This organisation was evolved over a period of years at Watson House, Fulham, where there are, in addition to research laboratories, testing houses, industrial workshops and training centres, a series of development laboratories dealing with meters, cookers, water heaters, fires, refrigerators, wash boilers, etc, and with both gas and coke equipment. At the head of each laboratory is a development physicist who is a highly experienced technical expert in his own field of development.

It has become customary for the manufacturers of gas and coke equipment to submit their prototypes to Watson House for examination. These go through most gruelling tests in the laboratories and are then submitted, with the reports on them, at a meeting (held periodically) of the firm's appliance selection committee. This committee consists of the controller of research, responsible for technical development; the commercial manager, responsible for selling, installation and maintenance; the public relations officer, keeping an eye on design; and the manager of Watson House. After the technical report of the head of the laboratory concerned has been heard, members assess the appliance from their respective points of view. On many points they are in agreement, but where they are not a compromise is worked out. Many factors have to be taken into account in even the simplest pieces of equipment; safety, efficiency, convenience, ease of cleaning, appliance maintenance. Final assessment is passed to the manufacturer by the laboratory head, with suggestions how the prototype can be altered to meet requirements. When these alterations have been made, the manufacturer submits his appliance again. A

* Formerly The Gas Light and Coke Company

product is often submitted several times before it obtains final approval.

Typical of the products which have passed through Watson House is the cooker shown in Figures 1 and 2; a post-war model designed to cater for the mass market. It is largely pressed steel on a cast iron chassis. When this cooker reached the development laboratory it was analysed in great detail; the chassis, the oven, the hotplate, the flue outlet, the gas control, the governor, the gas connections, the burners, the oven linings, the oven grid guides, the lagging, the door, the latch, the ignition, the cake tray and meat tin, the thermostat, the oven tap, the plate rack and splashplate, the hotplate taps and hotplate bars, the burner carriers, the grill cover and grill frets, and grill pan, and finish. Dimensions such as height, width and depth were compared with British Standard specifications. The maintenance instructions were tested. Performance tests followed; gas rates and combustion, thermal efficiency, enamel tests for acid resistance, abrasion, thermal shock and heat resistance. Then calibration of the thermostat, grill tests, surface temperatures, floor and wall temperatures, for fire hazard. And finally, the all-important cooking tests for oven, grill and hotplate.

When testing hotplate burners for combustion, the

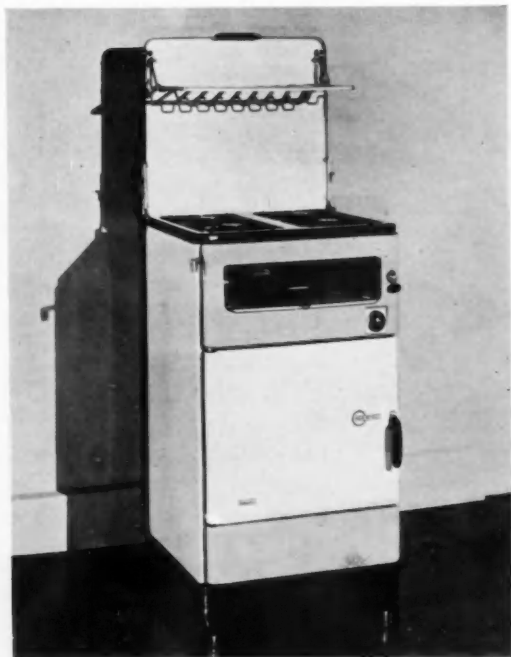
products of combustion are analysed to make sure that the proportion of carbon monoxide to carbon dioxide does not exceed .03 at the prescribed overload. (Figure 4.)

Laboratory tests on gas fires deal with the gas connection, pressure control, the flue and its minimum length, minimum depth for fitting, dimensions, combustion tests, radiant efficiency tests (Figure 5), convection efficiency tests, balance of radiant to convected heat, surface temperatures, radiants, appearance of fire when cold, when at half rate, and when full on, the firebricks, combustion tile, burner, body, tap, luting and jointings.

Generally speaking, refrigerator design is of a high standard. One of the latest models is shown in Figure 3. Here either longer legs in order to clean under the cooker, or a solid plinth would be preferable. Moreover the streamline effect of the handle and nameplate is more suited to a moving object like a car than to a fixed one like a refrigerator.

Another submission to Watson House was a kettle with finned base (picture, p. 10). Points in favour were increased fuel efficiency, an insulated handle, alarm whistle, and its large spout, which means that it can be filled at the tap without scalding one's hands.

continued overleaf



1 and 2: Prototypes as well as production models are tested for performance. Baking test includes a check on the time taken and the amount of gas used

DESIGN AND THE DISTRIBUTOR:

continued

Disadvantages, such as its many grease-traps, the closeness of the handle to the top of the kettle—which means burned fingers—and its lack of balance, have been taken up with the manufacturers.

When the idea of submitting products to Watson House for examination first originated, difficulties were encountered from manufacturers impatient to get on with production and sales, but they later began to appreciate the service, and very friendly co-operation now exists. Moreover, firms that switched over to gas appliance manufacture only after the war quickly realised the advantages of obtaining Watson House approval. Constant pressure on manufacturers to encourage their own design staff or to engage outside designers is, however, maintained.

In many cases of new developments it is necessary to find out what the public wants. To do this a permanent market research section is maintained which supplements the information received from showroom staff, sales representatives, home service staff, meter readers, slot meter collectors and fitters. For special jobs, such as a home laundry enquiry carried out since the war, outside market research



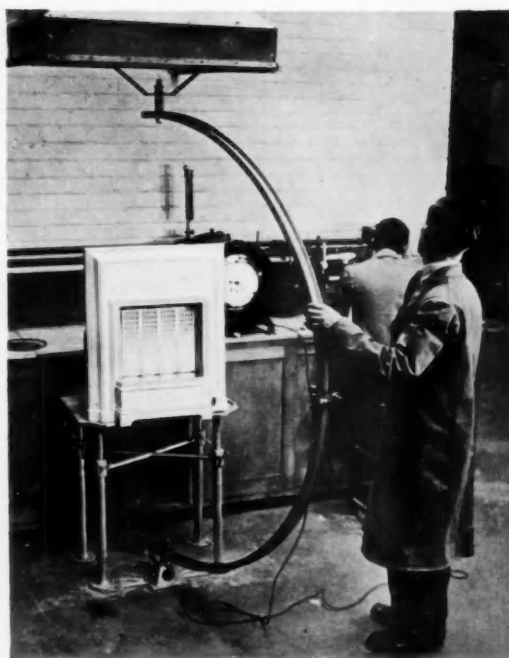
3: "Generally speaking, refrigerator design is of a high standard"

organisations are commissioned. Women's organisations are also consulted, in particular the Women's Gas Council, which has branches all over the country.

It is not yet clear whether the organisation as described here will be altered under nationalisation but it is to be hoped that some similar system will take its place. A fair amount of progress in the design of equipment has been made in the last 20 years, but much remains to be done, and although some of the larger manufacturers are able to do a great deal for themselves, there are many smaller ones who need advice and practical assistance.



4: Testing hotplate burners for combustion. "Firms quickly realised the advantages of obtaining Watson House approval"



5: The apparatus shown here is used to test radiant efficiency in various directions—one of many tests to which gas fires are subjected

Designing a radiant electric heater

A case history by A. Whitaker, OBE, MA, MIEE, F Inst P

This article describes the design-evolution of the HMV reflector electric heater in its original form, produced before the war. (A version modified in detail, but in principle fundamentally the same, is in production today.) It has no claim to topicality but is published as an "inside" story of the development of a new product. It is the story of striving to meet diverse requirements—technical, aesthetic and commercial—which forms the background to ninety-nine out of a hundred product designs. EDITOR

THE INTRODUCTION of the HMV convector heater produced a demand from the sales organisation for an electric room-heater of the radiant type, since convection heating and radiant heating are almost complementary: a radiant fire is one that produces as much radiation (which shoots out like light and warms the objects it falls on) and as little convection (which, without a fan to direct it, means hot air that tends to rise and warm the ceiling more than anything else) as possible.

The first step towards meeting the demand was a survey of radiant electric fires then in production. They could be divided broadly into two types—the loose-coil, without reflecting surfaces, and the reflector type, in which the resistance wire is wound on a long rod. In considering the pros and cons of the two kinds, the type of market had to be considered; HMV traditionally catered for the quality market.

Generally, the loose-coil radiant lent itself to—though it did not necessarily entail—cheap construction. However, the possibilities of impressive improvement in this field seemed, after investigation, slight.

The rod-type element, on the other hand, was plainly susceptible to further development. Two points emerged from first consideration. First, the higher the temperature at which the radiant element could be run, the more radiation and less convection (proportionately) would be produced; the ratio of



radiation to convection would be 20 per cent better at 900°C and 50 per cent at 1000°C than at 800°C. Obviously, therefore, the advantages of high element temperatures are great: but at about the range of temperature where radiation efficiencies rise rapidly, life of metallic resistance elements tends to drop even more rapidly. Hence laboratory work was at once started to find the design factors which controlled the life of rod elements at various temperatures. Out of these tests valuable information also accrued on the conditions necessary to obtain uniformly bright elements, without darker patches and lines.

Air temperature and radiation measurements on many types of fire (not only electric) were made and interpreted in terms of what the user wanted. The advantages of the radiant fire were that its radiations could be directed by a reflector and that its visible illumination conveyed a pleasant impression, perhaps deriving from coal-fire days but nevertheless real.

The experiments showed that most radiant fires of the non-reflector type sent out their radiation in a too diffused way: a great deal went down to the floor or up to the ceiling. On the other hand, reflector types shot it out like a searchlight beam and the intensity was much more than was needed in front, too little at the sides.

This led to the idea of the conventional reflector fire, with its straight element and one-dimensional
continued overleaf

DESIGNING A RADIANT ELECTRIC
HEATER: *continued*

parabolic reflector bent so that its vertical sections are parabolas, being bent also in plan, convex forwards. (Actually a radiant heater doing exactly this appeared on the market about that time.) Further consideration showed, however, that the practical difficulty of making a bent element (the ceramic core of which has to be screw-threaded accurately to locate the wire if good life is to be obtained) was excessive. Groping round this point led to the idea of keeping the element straight and curving the reflector alone in plan. Since the element at every point must lie roughly at the focus of the vertical parabolic sections of the reflector, this meant that the focal distance of the reflector would increase from the centre to the ends.

Appearance of such a surface gripped the attention of the designers. It was obvious that the scheme was technically sound and the basis of an attractive design based on the use of a new geometrical surface.

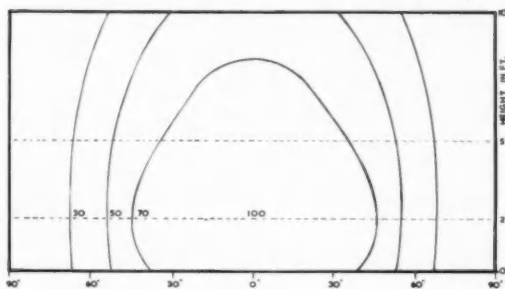
The basic principle was adopted, but many difficult problems cropped up. A reflector of this sort must end somewhere and its shape gave no indication of how it ought to be "edged." Having a purely geometric surface as such an outstanding feature, it was felt that its boundary should also be defined by a simple geometric construction. But what? Plasticine models sprouted in every direction, the reflecting surface was gouged out of vertical cylinders, horizontal cylinders, spheroids and rectangular boxes. All overpowered the reflector and looked clumsy. By this time engineers, draughtsmen and physicists were all feverishly modelling in Plasticine. At last a solution appeared—to keep the frontal view roughly

rectangular, to construct the back of the reflector of a sheet bent in one plane only, and let it find its contour to meet these two conditions. When a wooden model had been made, no doubt remained of the appropriateness of the solution. The assembly looked so neat that it was decided not to impair it by clumsy joints at the edges, but to undertake the rather difficult task of welding the thin sheet steel so that the whole reflector and back could be polished and plated as a single piece.

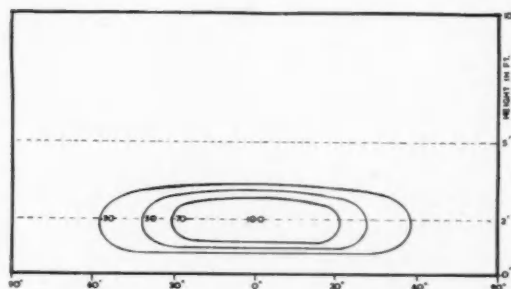
As often happens after the settling of a major feature of the design, the remainder seemed almost inevitable. With such a satisfactorily complete-looking assembly, breaks or fastenings on the front were out of place; so the element supports became semi-circularly bent tubes fastened to a junction and switch box on the back, appearing round the sides of the reflector and terminating at small cover boxes containing the element clips and connections. Since two electrical loadings were required (as customary), two elements had to be used, one in front of the other: consequently one at least could not lie on the theoretical focus. Their positions were fixed by moving them backwards and forwards till the most attractive distribution of glowing reflections was visible in the reflector, radiation distribution being checked by measurement and the possible effect on element life of their proximity being assessed by further life tests.

Simplicity of appearance of the heater was fundamental and an elaborate guard would have been incongruous, so a guard consisting of a rod of Pyrex glass was arranged, just in front of the elements, adding by its refraction to the pattern visible in the heater. (Later a simple detachable wire guard was

These three diagrams illustrate the radiation distribution from different types of electric heater. The paper represents a flattened-out vertical cylindrical surface at 6 feet radius from the heater. Each curve is a line of equal radiant intensity. Ideally, the radiant intensity should be constant from floor level to a line drawn horizontally on this surface about 5 feet up. The figure on each curve (70, 50, 30) represents the radiation intensity on that curve, expressed as a percentage of the intensity directly in front of the heater



1: Without reflector



2: With deep straight horizontal parabolic reflector

added optionally—rather against the grain of the designers.)

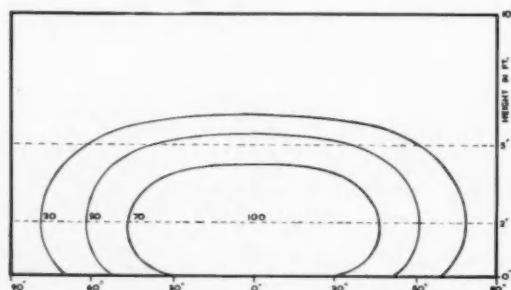
Pressed feet, allowing a tilting adjustment, and a chain handle arranged to hang over a projection on the moulded switch box and so keep cool, were added; and the design was ready for final life-test and tooling.

Both stages produced snags. Owing to the form of the reflector and the high running temperature, the chromium tarnished over the centre of the element. Prolonged trials were necessary to establish that suitably placed holes in the reflector back-plate would allow internal circulation of air sufficient to prevent this. Trial batches of elements showed disconcerting darker bands and patches. These were traced (a) to irregularities in the screw thread on the ceramic rod, which necessitated many sessions with the ceramic manufacturers, and (b) to variations along the wire caused by its annealing in coils, one side of a coil being left with a slightly different surface and emissivity from the other.

Manufacture of the reflector in quantity presented difficulties. Forming a sheet into a surface bent in opposite directions in planes at right angles is not easy, and a long period of experiment was necessary before a combination of pressing and welding technique could be evolved to secure the required result. When this was done, production went ahead with no more than the usual difficulties.

From first examination of the characteristics of radiant electric heaters to commencement of production took about two years. A number of technicians were associated with the development, and the main features of the design—both appearance and function—were divided among several of them. The heater had no individual designer; it was the product of a design team.

The author, who was responsible for the operations of this team, acknowledges with thanks their efforts and the permission of Electric & Musical Industries Ltd to make use of the material for this case-history.



3: With backward-bent horizontal parabolic reflector

Safe heating for the school classroom

HEATING UNITS installed in a number of new schools and nurseries show how Ferranti designers have solved a twofold design problem: the provision of units which would prove (a) more economical than conventional heating systems and (b) so safe that they can be installed within reach of the youngest or most mischievous child.

Of these two, Problem (a) was the easier to solve. For some 15 years Ferranti Ltd have been designing high-temperature electric radiant heating systems, in which the heating element runs at about 1000°C . Whereas most heating methods depend wholly or partly on heating the air, high-temperature radiation aims at supplying heat directly and instantaneously to the bodies of the children—thus cutting out losses of heat which otherwise occur in the walls and in the air (losses in the air are especially important in schools because ventilation must be adequate).

In the earlier high-temperature installations, electric fires were mounted on the classroom walls, pointing downwards on to the children from a height of about nine feet. A more recent development is to place the heaters much lower—in fact, so low that the radiation can pass under the desks and reach all parts of the room. In these latest installations, moreover, the temperature at foot and body level is higher than at head level.

The space heaters are of relatively low (500 watts) loading, and an average-sized classroom of good construction requires about 16 of them. They are arranged around the walls, the spacing being specified carefully to meet the thermal requirements of the different parts of the room. In this way a very even temperature is obtained over the whole of the class area. The heaters are wired in pairs, the switching being arranged to give maximum flexibility. There are two models—an inset type which is flush-mounted in the wall, and a surface type which projects $4\frac{1}{2}$ inches. The latter has an outer frame which is well rounded at the corners; it is necessarily slightly larger than the inset heater.

While there are evident advantages to be obtained by placing the heaters close to the floor, there is one compensating disadvantage—or rather, one additional challenge to the designers' ingenuity: the heaters are

continued overleaf

SAFE HEATING FOR THE SCHOOLROOM:

continued

within reach of the smallest child. It is their position that gives special importance to Problem (b)—how to make them completely safe. There is no one answer to this problem; the designers have solved it by taking a number of precautions:

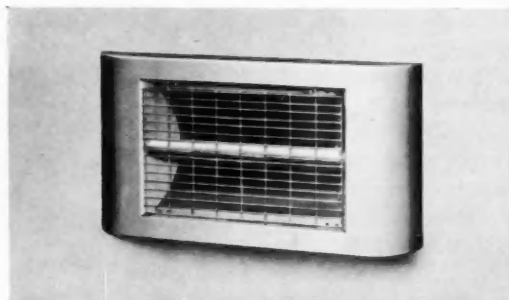
1. At the element contacts, specially shaped ceramic blocks cover the contact arms and all live parts.
2. The element is completely concealed by a semi-cylindrical metal guard.
3. A stout mesh guard covers the whole front of the heater, and the spacing of the mesh is graduated so that a child cannot put his finger through it directly in front of the element-guard.

As a result, the manufacturers are able to state with confidence that it is impossible to touch the element, even by introducing long narrow objects such as pens or rulers.

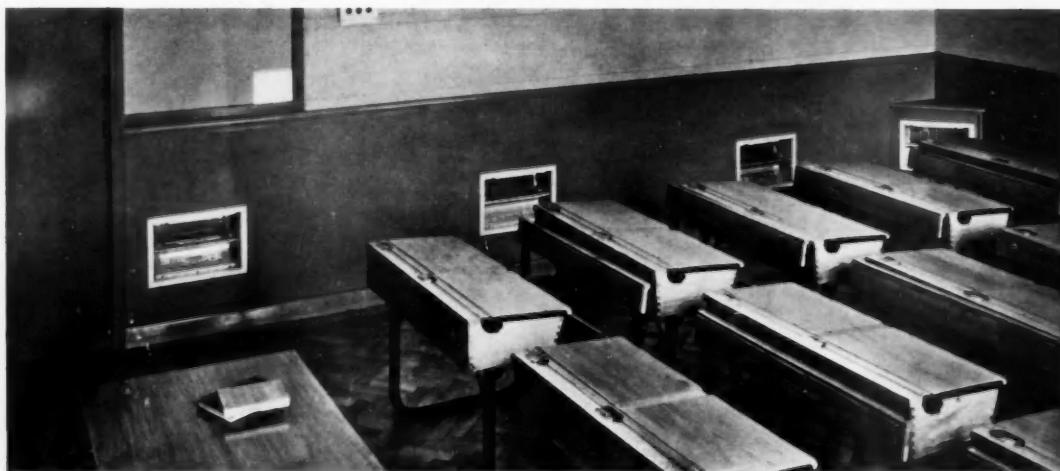
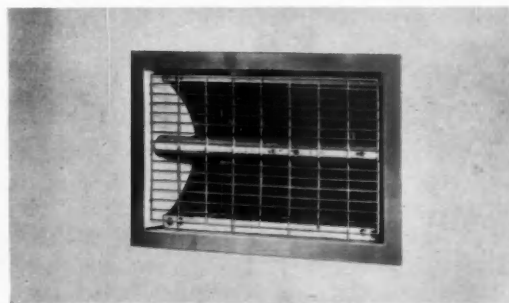
4. The mesh guard is held in place by two special screws and cannot be removed without the use of the appropriate box key.
5. All exposed metal parts are bonded together and earthed.
6. The heaters are wired throughout with asbestos-covered flex.

The element, its metal guard and the ceramic safety blocks are necessarily hotter than the rest of the heater, but the mesh guard protects the child from contact with them, and parts which can be touched—including the mesh itself—are no more than comfortably warm to the touch.

Members of the research staffs of the Ferranti Domestic Appliance Laboratory and the National Institute of Industrial Psychology worked together on the development of the heating system. The heating units were designed by the firm's Domestic Appliance Department in collaboration with W. N. Duffy, Ferranti staff designer. The reliability of the system is suggested by the fact that it has been installed for several years in at least two nurseries taking children from 18 months old.



Above, heater for surface mounting: below, inset type



Ferranti space-heaters, first installed in the late 1930's, are now coming into wider use; development was delayed by the war

New design in cooking and heating appliances

1: Housing shortage has stimulated a demand for table-top cookers, which electrical manufacturers have already met with such models as the Jackson Giant (*DESIGN*, April, p. 5), GEC, and Baby Belling. Now General Gas Appliances Ltd have designed and produced a gas cooker of comparable size (20 $\frac{3}{8}$ in. wide), the *Junior General*. This cooker, of welded sheet metal, has vitreous-enamelled top and sides in cream and black. Its oven is fitted with two grids. The top is hinged for easy cleaning and the safety taps must, to be turned on, be pushed in.

2: The oven fitted to this oil stove shows an advance on earlier models in this somewhat neglected field. It has been designed to facilitate cleaning; there are no corners in which grease can collect. The interior, finished in vitreous enamel, is fitted with an electro-plated heat deflector to ensure even distribution of heat. The interior is in black stove-enamel, with a cream door in which is fitted a thermometer. Recessed hand-grips are provided for carrying. Both stove and oven were designed by Florence Stove & Hardware Co Ltd and made by Joseph Sankey & Sons Ltd.

3: At the Scottish Industries Exhibition, John Kelly & Son exhibited this new *Visidial* electric deep fat fryer for restaurant use. A saving of 40 to 50 per



1: Gas cooker for the table-top

cent of fat is claimed for it, with faster cooking than where automatic gas burners are used. The outer white ring of the dial on front indicates types of food—fish, hamburgers, etc—for which different cooking temperatures are suitable; the inner ring is marked with temperatures in degrees. The guide panel at back is illuminated until the pre-set temperature is reached.

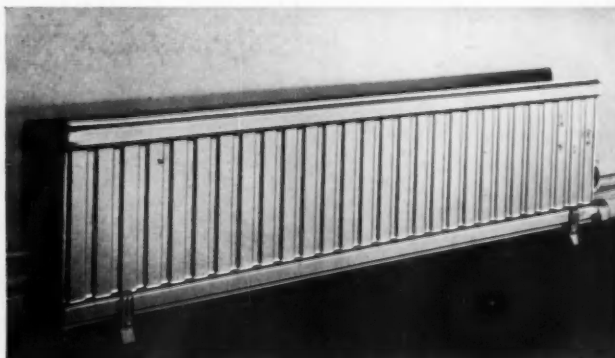
4: This panel-type radiator does not require refilling, and there are no air vents or water pipes to mar its simple lines or complicate installation. It is electrically operated, an immersion heater being welded into it. Thermostatic control can be provided. Legs, as shown, are used when the radiator is required to be portable; otherwise it can be attached to a wall or even built into a partition wall so that it heats two adjacent rooms. The radiators were designed by M. Hurley and R. Francies, of Hursel Ltd, the manufacturers. Similar models are available using gas instead of electricity.



2: Oil cooker



3: Electric deep-fat fryer



4: Hermetically sealed radiator, oil-filled, electrically heated

SCOTTISH FURNITURE ON SHOW

Contemporary design prominent at Glasgow Exhibition

THE SCOTTISH INDUSTRIES EXHIBITION in Glasgow was probably the most dramatic trade fair held since the war. From the superb stage-management of the Royal Opening to the courtly camouflage of the Arena, from the brilliantly concealed vault of Kelvin Hall to the swaggering procession of exhibition stands along the "Queensway," the whole enterprise had that touch of professional *panache* which currently distinguishes British trade exhibitions from their foreign competitors.

But to suggest that this was the post-war high-water mark in exhibition technique is not to invite a still higher tide next year. There must be an economic limit to such magnificence; there must be some point at which the great business houses participating will realise that the purpose of an exhibition stand is to sell goods and services, not the art and ingenuity of a designer. Unless one had foreknowledge it would have been hard to tell, without close examination, what was the business of some of the great companies which had taken prominent sites

in Kelvin Hall and had erected such exciting and elegant constructions. Among the Queensway leaders, only the Templeton carpet stand made it immediately and abundantly clear in what the company dealt. To say this is by no means to belittle the overall conception of the Exhibition, which, in the hands of a single architect, achieved an almost perfect blend of variety and conformity, in colour, scale, planning, lettering.

Apart from the display, the outstanding success of the exhibition was the array of excellent contemporary furniture. This was no flash in the pan confined to one eccentric or progressive firm; the new designs were burgeoning on at least four stands from the Scottish CWS at one end of the price range to the unpriced pieces by Wylie & Lochhead Ltd at the other.

Particularly interesting were the new utility ranges designed for the Scottish Co-op by R. Y. Goodden and R. D. Russell. Many of these pieces are designed for unit assembly (small models will enable the customer to build up her own combinations), but by careful attention to details, the designers have



Drawer, cupboard and open-shelf units make this furniture suitable for many uses. Cupboards are fitted with either shelves or trays. From the range designed by R. Y. Goodden and R. D. Russell for the Scottish CWS

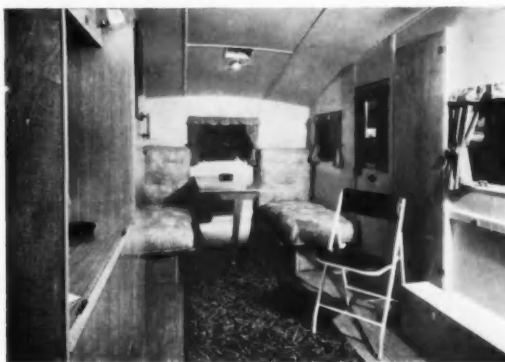
avoided the boxy, angular appearance which was characteristic of pre-war units. Also, the woods chosen—elm and natural mahogany—avoid that chill antiseptic look which afflicts some Continental white-wood furniture.

Another successful tax-free range was the well publicised Cumbrae dining suite designed by Neil Morris for Morris & Co Ltd. Here again it is attention to details, such as the sycamore lining of the sideboard and the fine finish of the natural French walnut, which gives these simple, well-proportioned shapes that suggestion of opulence which is an important selling point.

More luxurious but well in the contemporary manner were the dining, bedroom and sitting-room sets designed for Wylie & Lochhead Ltd by Frank Austin and Neville Ward. Important as is the conversion of the Utility end of any trade to contemporary canons of decent design, a convert in the high-price market is, in the long run, likely to carry more weight, for, whatever the society, taste is set from on top. The lead given by this respected and conservative firm is therefore very welcome.

These indications of a renaissance in Scottish furniture design (all possibly deriving from the recent Furniture Competition organised by the Scottish Committee of the Council of Industrial Design) attracted most attention from a visitor in search of new designs. Among other well designed products was the new Deveron caravan by Thomson Caravans Ltd, which has a glass fibre lining between its outer walls of aluminium and its inner walls of hardboard veneered with oak. Its other features include a Perspex sink, gas cooker, and hot and cold water in the kitchen.

P. R.



Interior design on wheels: the Deveron caravan



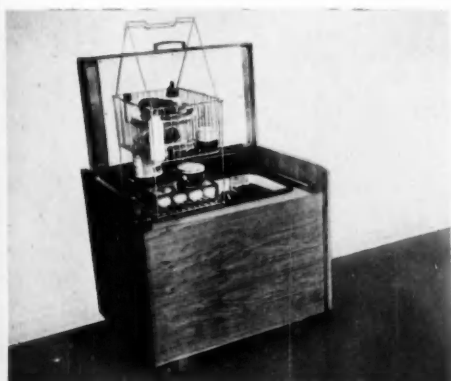
Above: Sideboard from Morris's Cumbrae suite

Below: New Scottish Co-op furniture makes good use of unit construction. (Individual pieces are shown on left)





DESIGN OVERSEAS



Concealed refrigerator

The problem of designing a refrigerator suitable for a small modern flat has been solved in an unusual way in France. The firm Electrolux of La Courneuve has treated it as a piece of furniture likely to appear in the living-room, making it coffer-shaped, somewhat like a radiogram, and in 20 different types of woods as well as in white enamel. It opens either by raising the lid or by sliding it horizontally, so that the inconveniences of a side-opening and of having to move any objects standing on it are both removed. The refrigerator, being of an absorption type, is entirely motorless. It may be operated by electricity, gas or petrol. From *Arts Ménagers*, Paris, no. 3/1949.

Chairs from Denmark

Danish furniture has earned a reputation for embodying good design in sound workmanship. Current examples illustrated here are, on the right, an armed Windsor chair from the Danish Co-operative Wholesale Society, and two views of a chair in beechwood



from Fritz Hansen of Copenhagen. Both models are left in the natural light colour of the wood; and both are to be marketed in Britain, the CWS model at £3 10s and Hansen's—without the cushions shown—at £5 16s 9d. Photographs from the importer, P. E. Stemann.

Two shades for one lamp

Most interesting feature of the two Finnish lamps, on right, is the use of inner and outer shade. The former, of white opal glass opening upwards, is said to soften and spread the light. The outer shade, also open at the top, is woven of paper-like wooden strips. Metal and wood are used together for the stem of one of the lamps, which stands just over 28 inches high and is therefore taller than most reading lamps. Originally constructed by an electrical engineer the lamp has now been standardised by the Association of Finland's Electric Works. Mrs Lisa Johansson-Pape is responsible for its appearance-design. From *Kaunis Koti*, Finland, no. 4/1948.

Glass from Holland

Since the seventeenth century the decoration of glass for special occasions has been practised in Holland. Births, marriages, political events and in recent years business jubilees have been commemorated in this way. The cognac glass below is a recent example, engraved with heraldic device and recipient's initials. It was designed by the Leerdam Glass School for the Leerdam Glassworks. A high standard of design is common to all the products of this firm, *e.g.*, the lead-crystal water set on right—designed by A. D. Copier, Leerdam's chief designer.



Industrial Design Abstracts

DESIGN: GENERAL

Machine dials and scales [A]

Problems of dial and scale design include the best arrangement of dial markings for speed and accuracy of reading, the choice of pointer, and the grouping of several dials on a simple instrument or machine. In a recent study of the errors made in a forced fast reading of a selection of dials, the open window type was found to be the most satisfactory.

Machine Design, Cleveland, August 1949.

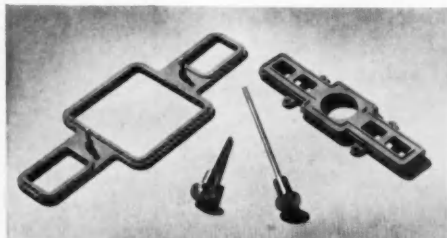
Modern Dutch ceramics [A]

An account of the Dutch ceramic industry gives details of the most popular designs now being produced. These include the *reflet métallique*, in which precious metals are made to bring out reflections on undecorated vases and bowls; "White Delft," which relies for effect on its beauty of form and has a very fine, slightly creamy, white opaque glaze; and cloisonné tiles, which have coloured, crystallised glazes separated by clay ridges and resemble Limoges. Decorations include enamelling coats of arms in heraldic colours.

Pottery and Glass, August 1949.

Design for sight saving [A]

The decoration of schoolrooms and of their contents must first be planned so that the light is reflected uniformly. Dark areas and shadow producers must be avoided, window glare minimised and matt surfaces and furniture be planned to reduce the reflected glare.



Zinc alloy die-castings for Jowett and Vauxhall cars: instrument bezels, and control knobs with die-cast heads lettered to indicate their purpose. Their steel stems are cast-in as inserts. (From *Zinc Bulletin*)

Egg-crate bottomed fixtures, though attractive in appearance, give no control over reflected glare and should therefore be avoided. The best colour for blackboards is yellow-green, and a bluish light makes fine detail work easier to see.

Progressive Architecture, New York, August 1949.

A primer of glass design [P]

The principal elements in the design of hand-made glass are analysed step by step, and are fully illustrated by diagrams which bring out the many ways in which basic forms and types of decoration can be combined.

Steuben Glass, New York, 1949.

TECHNICAL BACKGROUND

Television cabinet design [A]

The technical limitations which govern the work of the television engineer must be fully appreciated by the industrial designer before he can design a suitable cabinet. Points which must be considered are: the comfort and convenience of the user, which will affect the height of the cathode ray tube from the ground and the placing of the control knobs; the picture surround or frame, which should be light in colour with rounded inner corners; the position of the loudspeaker in relation to the screen; the cabinet depth necessary to house the cathode ray tube; the provision of castors or domes of silence to facilitate moving; and easy accessibility for servicing. The cabinet should be dark in tone and have nothing on the front, such as a pilot light, to distract the viewer from the screen.

Art and Industry, September 1949.

Zinc alloys and the motor-car [S]

Zinc alloy die castings are used extensively by the motor industry for mechanical, coachwork and electrical fittings since they are frequently the most economical means of obtaining complex forms and exacting dimensions. These components range from solid parts such as carburettor bodies and door handles to horn rings which, though strong and rigid, must be light and elegant in appearance. Both British and American designers make full use of zinc alloy castings for

radiator grilles, mascots and nameplates, bumpers and light fittings.

Zinc Bulletin, Oxford, No 6.

Domestic gas appliances [A]

A detailed study of progress in the use of gas for cooking, room and water heating concludes that it is becoming less and less practicable to base plans on the popular assessment of current needs. Instead, a careful analysis of the underlying physical and biological processes and requirements is needed and this will cause design to lead rather than follow public demand. A brief summary is included of some of the factors producing the great differentiation of forms in gas appliances in different countries.

Gas Journal, 31 August 1949.

COMMERCIAL BACKGROUND

British cars in America [A]

Some British cars fail to stand up to typical U.S. conditions of maintenance, according to H. S. Griggs. The track of the smaller makes is too narrow to fit some of the air-hydraulic hoists; ordinary U.S. wrenches will not fit many British-size nuts or bolt heads; some British grease seals are not suited to pressure greasing with the 150 lbs. of air customarily used in America; and the manoeuvrability gained by the short wheelbase and narrow width is often reduced by poor steering lock. British exterior finish wears better and the body steel is thicker, but these are not sales factors which outweigh servicing difficulties.

The Motor, 17 August 1949.

Clothing in Canada [P]

In this report, which covers many aspects of the Canadian market for clothing, sectional reports give details of preference in style, finish and fabric. More attention needs to be paid generally by British manufacturers to Canadian requirements. Examples mentioned are: wider shoulders, long roll lapels, full cut fronts, only slightly shaped waist, and semi-drape for men's jackets; five pockets in men's trousers, including one secret cash pocket in the waistband; and plain white or self-coloured shirts with attached collars. Coat cloths of light weight are preferred for women's winter coats, since quilted satin or chamois linings are provided.

Report of the United Kingdom Clothing Mission to Canada; HMSO, 1949, 9d.

The letter appearing in the title of each abstract indicates the form of the publication from which that abstract is taken: [A] article or articles in a periodical; [B] book; [P] pamphlet; [S] supplement or special number. Place of publication is London unless otherwise stated.

METHODS AND MATERIALS

Laminates in new clock cases

ANY IMPARTIAL OBSERVER must surely admit that the design of clock cases is a branch of design in which we have not yet equalled, nor come anywhere near to equalling, the best work of earlier generations. If the reproduction of antiques is therefore more excusable in this field than in some others, any attempt to break away from it and evolve a genuine contemporary style is correspondingly more praiseworthy. Baume & Co of Hatton Garden have recently made the attempt, commissioning (on a recommendation from the Design Advice Section of the Council of Industrial Design) Dennis Young, ARCA, to design a range of cases for their *Gibson* clocks.

The designer has widened the break with convention by using, for these cases, materials which are relatively new—in this particular field of production, we believe, completely new. They are Vendura and Formica. Vendura (described in *DESIGN* No. 1, pp. 21-2) is a product of Venesta Ltd, and consists of a wood veneer bonded to an aluminium base. Formica, made by Thomas De La Rue & Co Ltd, is a laminated plastic which may be printed between laminations, so that the printed design cannot wear away or be erased.

Four models have been designed, two in each of these materials. They were first shown at the recent Canadian

International Trade Fair in Toronto, where they aroused a good deal of interest—and orders. The mechanical design of the *Gibson* clocks, like the case design, is unconventional; the movement is of Swiss 15-jewel type, spring-driven in the normal way, but the spring is wound electrically. The source of power for this purpose is a standard 4-volt torch battery, and it is claimed that a clock will run for approximately a year on one battery without receiving attention.

Formica is used in a nursery clock (which can be produced very economically as it is cut from a single flat sheet), and in the model illustrated below, left. In this, Mr Young has essayed not only a contemporary style but a contemporary decorative style; there is no accepted form of decoration today comparable to the ornamental engraving of seventeenth-century brass lantern-clocks (and of sundials and mathematical instruments), or to the "Chinese taste" a century later. His attempt to evolve a contemporary idiom may not be regarded as wholly successful aesthetically, but at least the attempt has been made, and for making it credit is due to both designer and manufacturer.

Apart from the Formica dial, this clock case is made in walnut and sycamore. The *Gibson* movement is so compact that space has been found for a miniature "cupboard" within the case,

giving the clock a secondary usefulness when employed on a desk or dressing-table.

The second of the two models illustrated (below, right) is cased in Vendura, with sloping ends of applewood. The hour numerals are formed by engraving through the veneer to expose the aluminium beneath: it is no doubt for this reason that they have been kept to a simplified roman form, which adds to their legibility. The other Vendura-cased clock—not shown here—has its "case" formed from a single piece of the material, folded longitudinally so that it forms both base and face.

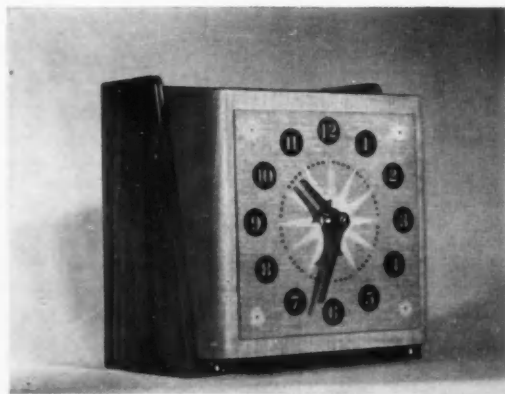
Indelible cloth mark

A NEW METHOD of permanently marking cloth has been patented in which a form of transfer that penetrates and virtually dyes the fabric is used. With most transfer methods only the surface of the fabric is affected; hence the mark is easily rubbed or washed off. The new patent includes a formula for a special type of ink, instead of the oil-based printing ink normally used.

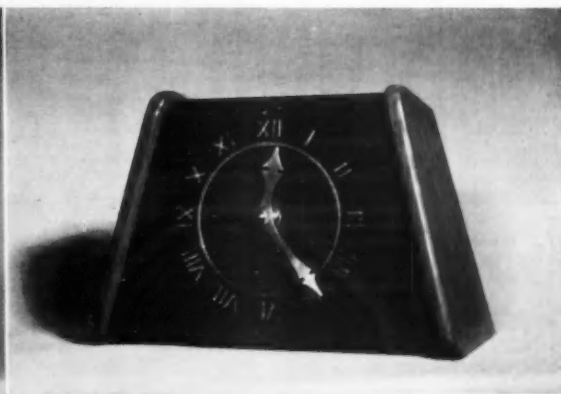
The transfer, called a Thermark, is applied by pressing it with a hot iron onto the fabric over a piece of damp cloth. After removing the Thermark and damp cloth the iron is applied again for a few seconds.

The method can usefully be employed for applying trade-marks to goods, for marking linen for hotels, restaurants and hospitals with crests or names, and for printing cloth packs for export goods. A future application may be the marking of softwood cases for packing fruit.

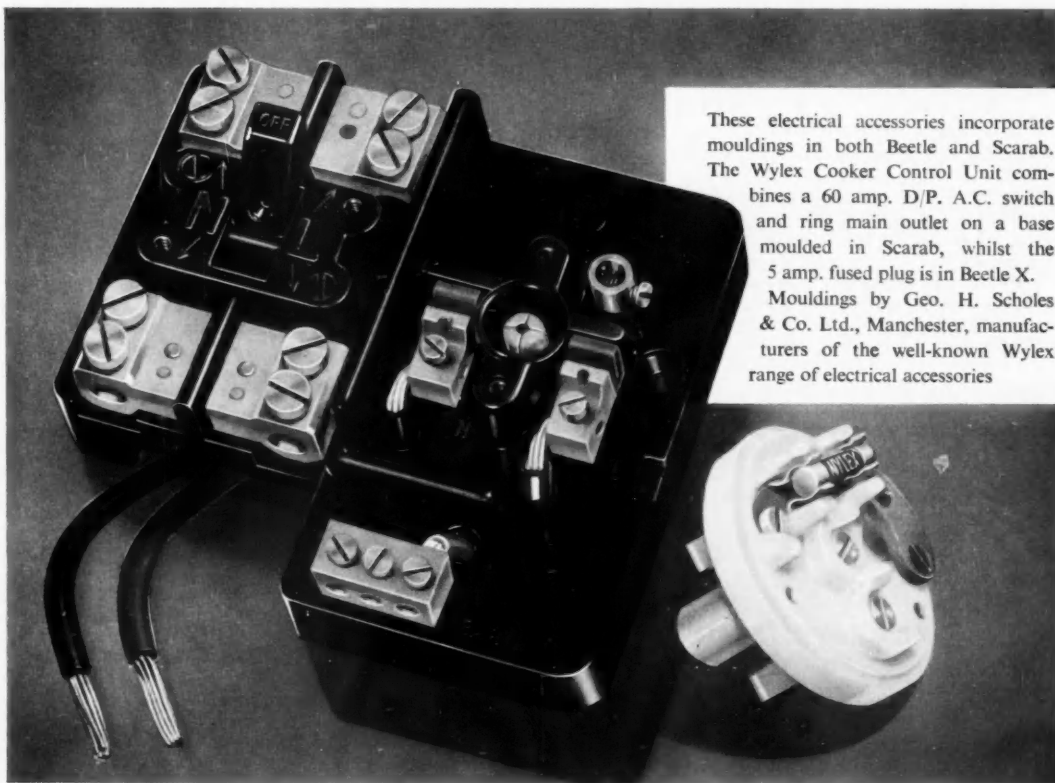
Manufacturers are Thermark Ltd, of Lingfield, Surrey.



Colourful; but does the decoration impair legibility of hands and dial?



Aluminium figures show up clearly through a French walnut veneer



These electrical accessories incorporate mouldings in both Beetle and Scarab. The Wylex Cooker Control Unit combines a 60 amp. D/P. A.C. switch and ring main outlet on a base moulded in Scarab, whilst the 5 amp. fused plug is in Beetle X.

Mouldings by Geo. H. Scholes & Co. Ltd., Manchester, manufacturers of the well-known Wylex range of electrical accessories

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LETTERS TO THE EDITOR

Contemporary or reproduction?

SIR: I have read the correspondence in your July, August and September issues on "Design and the Retailer," and as these deal principally with furnishing, perhaps the viewpoint of a retailer might be of interest.

The function of a buyer is to provide the type of merchandise for which he has a demand; he is able by study of the sales and by constant meetings with his staff to assess the requirements of his public.

My own observation, since the much-discussed freedom of design was introduced, is that at present there is very little demand from the average person for furnishings of contemporary design. This view is borne out by discussion with a number of retailers and manufacturers, who have had similar experiences.

There is no doubt at all that the major demand at the moment is for reproduction furniture. As soon as the regulations were relaxed and manufacturers were offering reproduction styles, most of the Utility designs, good though they were, were practically unsaleable.

Almost every furnisher had both Utility and reproduction designs in stock at the same time, and the clearance sales of Utility furniture, in all areas, prove that demand was for reproduction styles. No retailer would have reduced the price of these stocks had he been able to sell them in competition with the latest productions.

There is a reason for this reaction; for years the Board of Trade had exercised rigid control over both the manufacturing and retail selling. No other trade was tied down hand and foot like the furniture trade. Design was put in a straight-jacket, and manufacturers threatened with penalties if they deviated in the least from this dictation.

Is it any wonder that as soon as there was freedom the pendulum swung in the opposite direction? This always happens after periods of suppression.

I am sure we will not make progress by the manufacturer and retailer blaming each other. As a retailer I am interested in the sale of good contemporary furnishings, and am disturbed by the poor designs now being offered.

What is the remedy? In my opinion a section of the department should be given to a comprehensive display of well designed furniture, carpets, fabrics, glass and china, to enable the furniture to be displayed in its right setting. This to many would be a long-term policy, but I am certain the eventual sales would justify the experiment.

I trust your correspondents will look on the retail furnisher with a little kindlier eye and realise the difficulties under which he works, during this transition period.

J. W. WRIGHT

Sal, Cheshire

Italy's architect-designers

SIR: As one of those who were instrumental in introducing your periodical DESIGN into Italy—where there is keen appreciation of the field you have set yourself the task of serving—will you allow me a few remarks on the article "Contrasts in Current Italian Design" (July, p. 8). This article has occasioned some surprise in Italy among those particularly interested in the questions it deals with.

With the exception of Marcello Nizzoli's admirable Olivetti typewriter and Vittoriano Vigano's chairs, the examples illustrated evince a very dubious quality in design; and considering how few they are, this appears all the more regrettable. Though I naturally refrain from discussing the merits of the Italian architects named by the author, I feel I must protest that two of our best designers of furniture, Ico Parisi of Como and Carlo Mollino of Turin, both of them architects, are not even mentioned.

But the statement to which emphatic exception must be taken is that our Italian designers show little interest in evolving mass-production models—because no explanation of the reason qualifies it. For a considerable period prior to the war, Italian architects had been launching numerous models of inexpensive furniture for industrial production. If this activity is, in a general sense, now no longer in evidence, the reason is that their activity is concentrated on the thousands and thousands of working class dwellings which are being built to replace those destroyed

during the late war. Hence the little furniture they can now design are mostly individual commissions, often executed only as single pieces, for such well-to-do clients as are fortunate enough to possess permanent homes of their own. This state of affairs is purely transitional, and in a year or two's time the author of your article will certainly be able to make his choice from a comprehensive range of standardised, low-priced models within the reach of all sections of the community.

ALBERTO SARTORIS

Lutry, Switzerland

• We showed this letter to Leopold Schreiber, whose comments follow: "Towards the end of his letter, Mr Sartoris explains why, for the time being at least, there is no evidence of the industrial-design activities of leading Italian architects. 'NOW NO LONGER IN EVIDENCE' are the words he uses in this connection, while my report underlined the general impression one receives in Milan that Italian architects have undoubtedly the genius for reconstruction but that we are apparently witnessing a transition stage in which (for various reasons) not a great many industrial designs of exceptional merit can be achieved. I am as convinced as Mr Sartoris that in a year or two this picture of design for quantity production will be quite different from my impressions at the Milan Fair in 1949.

"I am, however, surprised at your correspondent's protest that the names of two leading architects, Ico Parisi and Carlo Mollino, were not mentioned in my article. I thought I had made it clear that it was impossible in such a short survey 'to give credit to all those who have played a dominant part in this great revival movement of art and industry.' There are so many brilliant artists at work today in Italy that it would take a whole book if every leading designer's work was to be represented."

—EDITOR.

Design in the laundry

SIR: About 18 months ago this Institution organised a competition offering a prize of £1,000 to a successful competitor for a design or system for the identification and assembly of laundry articles. The competition closed on 31 August 1948 but it has been decided to reopen it for a further period ending 31 March 1950. The rules of the competition have been amended slightly in order to help competitors, and copies may be obtained by any interested person from the undersigned.

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NOTEBOOK

Retailers discuss design

WHEN LARGE-SCALE retailers take a serious interest in the design of the merchandise they handle the implication for the manufacturer is obvious: design must be recognised as a factor in saleability in the trade as well as among the public. A number of leading Midland retailers, realising the need for improvements in product design, have now formed a Design Discussion Group, and hope to arouse wider interest among other retailers by meetings and discussions. The group's secretary is B. A. L. West of Barrow's Stores Ltd; other Birmingham stores represented are Lewis's, Marshall & Snelgrove, Rackhams, A. J. Norton & Sons, and the Moor Street Warehouse Co, as well as Hogarth Warehouses Ltd of Coventry.

Cover illustration

Our front cover this month illustrates a cruet designed for British Overseas Airways Corporation. On this page it is shown alongside a rectangular cruet which it replaced; although this was well liked it was heavy and its design made uneconomic use of space because the mustard pot was as large as the salt and pepper together. In the new model, the designers have included two salt cellars because, they argue, at a typical meal about twice as much salt is used as pepper or mustard.

The circular cruet is made both with and without a handle. Handleless cruets can be stacked above one another, a real advantage in the limited storage space on board an aircraft, for which this model is intended. The tray, besides its obvious function of keeping the components together, can be used as an ashtray when they are removed.

Old and new cruets were designed by Kenneth Holmes, ARCA, MSIA, and

N. R. G. Poynton, ARCA, and made by Gladwin Ltd of Sheffield.

Design for heating

When, in the middle of a sweltering summer, we thought of giving special attention to heating and cooking appliances in this number of *DESIGN*, we did not realise how many people must be thinking similar unseasonable thoughts. It is now evident that several other editors were; as a result, readers who are specially interested in heating equipment can supplement the information in *DESIGN*, pp. 10-17, by referring to comprehensive surveys in the *Ironmongers' Weekly* for 25 August and the *Hardware Trade Journal* for 16 September, or to more selective articles in October *Ideal Home* and September *Housewife*. The *Housewife* feature was a masterly piece of compression: into six pocket-size pages were packed 16 line drawings of heating appliances, explanatory captions, and an article.

All-in type specimens

Typographical designers and print-users have become painfully aware in recent years of the lack of uniform type-specimen sheets and, indeed, of good type-specimen sheets at all. To meet their needs, the new Burridge Broadsheets have been designed by Eric Ferguson (designer with Foote, Cone & Belding, advertising agents) and Oliver Burridge (printer and publisher). Each of these sheets will be devoted to a single type-face, showing complete alphabets in all sizes of caps, lower case and small caps; with additional or alternative characters in a representative size. Broadsheet No 1 (1s 3d) deals with *Perpetua*; 2, *Perpetua* titling capitals; 3, *Gill Sans*; with more to follow. The sheets will be even more useful when

they deal with lesser-known type-faces than with the popular Monotype designs, which are comparatively accessible elsewhere.

In the news

Chairman of the British Rayon Federation, Sir William Palmer, KBE, CB, is a recently appointed member of the Council of Industrial Design.

W. Johnstone, JP, another new member of the Council, will represent the furniture industry and the interests of the Council's Scottish Committee of which he is already a member.

Lady Sempill is a new member of the Scottish Committee.

Learning from abroad

C. W. H. Bone, a post-graduate student in the School of Ceramics, Royal College of Art, has been awarded the FBI Industrial Art Committee's prize for "outstanding promise as an industrial designer." The prize amounts to about £80 and will enable Mr Bone to enjoy a period of educational travel in Europe. His studies at the Royal College were interrupted by four years' RAF service.

W. Stanier, ARCA, MSIA, recently completed a report to the FBI on six months' study of glass and general design in Sweden, which he undertook under the same Industrial Art Committee's auspices. He considers that British glassworks have greater skill in craftsmanship, technical knowledge and equipment, but that English glass design must not be governed by the processes; the designer must be allowed to use them to the best aesthetic purpose.

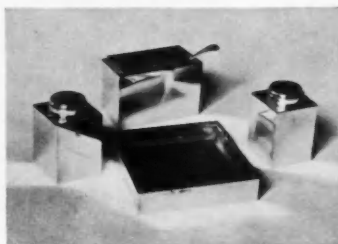
Exhibitions in brief

Radiolympia: the mixture as before. Electronic instruments and technical equipment—an important section of the exhibits—put most of the domestic sets into the shade by their tidy appearance and excellent finish.

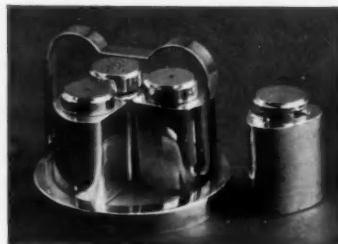
National Packaging: an ambitious first effort. Not, unfortunately, an exhibition of good design in packaging, but an exhibition representative of the package-producing industries and their machinery suppliers. Successful despite the conspicuous absence of several of the biggest and best-known firms. Perhaps the exhibition's location in a Manchester side-street frightened them: yet it attracted the right sort of visitors—serious enquirers, not casual sightseers.

International Book Jackets: at the Victoria & Albert Museum. Entries from 19 countries show a surprisingly high standard of design, with interesting national characteristics. Open until the end of December; not to be missed.

continued overleaf



BOAC cruets: first angular . . .



then circular

STREAMLINING: FAD OR
FUNCTION? : *continued from p. 5*

single inverted dome of deep-drawn steel. Contours have to be soft in order to draw with the minimum number of operations and to permit of easy buffing and polishing, for these are among the most highly-paid skills in the American manufacturing plant. Even plastic radio sets have taken on softer contours. As any mould designer knows, thermo-setting materials flow more evenly around curved mould corners than into sharp or "edgy" pockets.

There is no doubt but that streamlining of some static objects is in bad taste, not to say unnecessary. But is it fair to damn the designer to eternity because his designs echo the one really new visual phenomenon of his age? Assuming that the product is ephemeral,

must he always be the purist, and refrain, even in the spirit of whimsy, from casting the glamour that streamlining may afford?

Chippendale, an opportunist if ever there was one, was not slow to borrow Chinese motifs when England's imports from the Orient made them common currency. Napoleon's Egyptian campaign brought more than an echo of the Pharaohs to the official "Empire" style.

But—setting aside the more flippant aspects—the industrial designer, in the production of major products that sell not only in thousands, but sometimes in millions, must examine anything and everything that offers a chance of reducing the twin burdens of material costs and hand labour.

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NOTEBOOK : *continued*

Fashions in car design

In the second issue of *DESIGN* (February, p. 23) we quoted the chairman of the Rover Company as forecasting a change in the "styling" of his firm's cars. Rover had been producing cars of virtually the same body-design for so long that changes were no doubt technically as well as commercially desirable. They have now been made. They are unquestionably drastic, but whether they are changes for the better is open to question.

Fashions in car body-design change so rapidly that a manufacturer who attempts to follow a fashion when it has already become established runs the

risk of finding himself on a beach from which fashion's tide has already receded. The makers of the Triumph *Mayflower* have chosen to take the opposite course, flouting (up to a point) the present world-wide fashion for soft curves. The *Mayflower* has similar "knife-edge" angles to the larger Triumph saloon, and they are even more conspicuous in it because it is a shorter car. The angular style of this new model is positively John Bullish.

The new Rover and the *Mayflower* were perhaps the most interesting cars in this year's Motor Show—in which there were fewer freaks among the exhibits than last year. The official Show publicity material—banners, posters, catalogues—was as undistinguished in design as ever.

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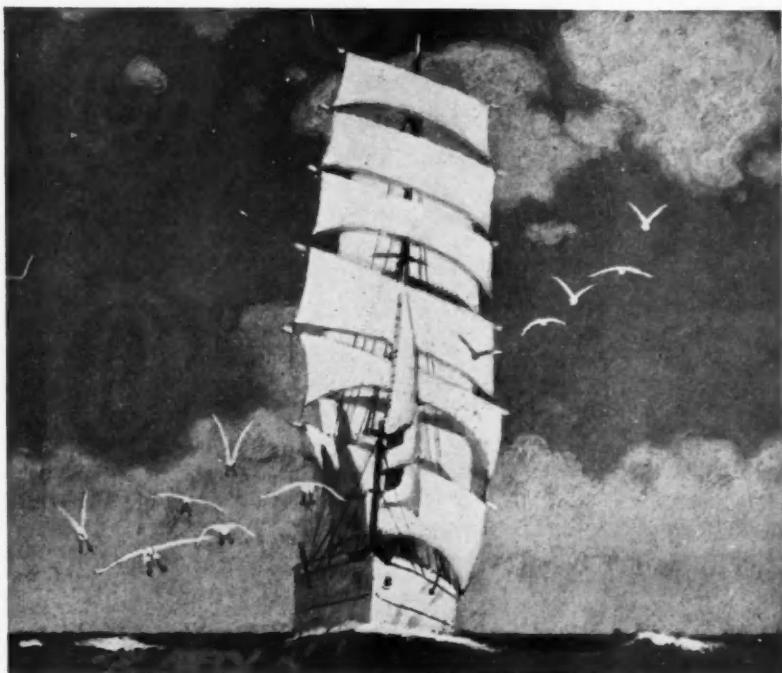
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Unmistakably a Rover



A Rover



WHITE WINGS

The dazzling white of full sails and seagulls' pinions as they catch the sun in high relief against the wine-dark water seems the ideal of whiteness. Yet it is illusory, and the purity of sails or feathers is far surpassed in the standards the public demands from the modern laundry. Laundering is a highly technical business, in which the research and service of the British chemist is of the first importance. The launderer has to consider the nature of the textile fibre in question, the fastness of the dyestuff with which it is coloured and the character of the finishing agents with which it has been treated. He must, for example, not only remove every speck of dirt or sign of stain but also take precautions against the shrinking of wool, against silk's loss

of sheen, and against the fading of the dyes. Dry-cleaning introduces another set of chemicals and its own range of problems. It is to the chemist that the launderer looks for help in purifying and softening his water supplies; in thoroughly wetting great masses of materials and in loosening and removing the dirt from them; and in providing an ever-increasing number of chemicals for determining the "feel", colour and appearance of textiles as well as their resistance to wear, grime, sunshine, rain or perspiration. Your launderer and dry-cleaner aim at returning a fabric or garment with all its qualities unimpaired. The British chemist contributes by making this aim a possibility.



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